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REIR Scoping Comments
Accelerating SLR Data
Tom McMahon
November 3, 2023

Attn: Ballona Wetlands Restoration Project -

2023 [1] and 2022 [2][3][4] studies project that NOAA Santa Monica, CA - Station ID: 9410840 sea level is rising at an increasingly accelerated rate that obsoletes the FEIR design. REIR funding should be postponed until this issue is added to its scope and content.

The September 9, 2023 NASA/JPL Interagency SLR Task Force Report [1], documents Santa Monica Bay year 2100 sea level projections at 68, 77, and 83 Inches ("High" scenario 17, 50, and 83 Quartiles). All are significantly greater than the single 59 inch ("High" scenario) used in the DEIR and 2020 FEIR [5][6].

2023 "The Sea Level Rise and Coastal Flood Hazard Scenarios and Tools Interagency Task Force produced a Technical Report titled "Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines". This report provides the most up-to-date sea level rise scenarios, available for all U.S. states and territories, out to the year 2150. It is the latest product from the Task Force, which includes the National Aeronautics and Space Administration, the National Oceanic Atmospheric Administration, Environmental Protection Agency, U.S. Geological Survey, and U.S. Army Corps of Engineers, along with partners in academia. The information in the report is intended to inform coastal communities and others about current and future sea level rise to help contextualize its effects for decision making purposes."

Summary from "NASA Interagency SLR Task Force, National Tech Report, Santa Monica 2023-09-26.xlsx" [1], also attached:

						YEAR					
						2100	2110	2120	2130	2140	2150
USACE Quantile	USACE "HIGH"		NASA/JPL Quantile	NASA/JPL HIGHs		NASA/JPL 2023 versus FEIR 2019 (USACE 2011)					
	mm	inches		mm	inches						
N/A	1498.6	59	17	1743.892	68.65717	116.37%	135.32%	148.73%	162.54%	171.09%	176.69%
N/A	1498.6	59	50	1955.892	77.00362	130.51%	156.27%	178.36%	196.71%	215.59%	234.21%
N/A	1498.6	59	83	2115.892	83.30283	141.19%	171.02%	211.59%	254.50%	300.21%	347.58%

High 17 Quartile. Year 2100: 68" – 16% over 59" FEIR USACE EC 1165-2-212

High 50 Quartile. Year 2100: 77" – 30% over 59" FEIR USACE EC 1165-2-212

High 83 Quartile. Year 2100: 83" – 41% over 59" FEIR USACE EC 1165-2-212

The 2020 FEIR states: *“The current design conservatively uses the Corps’ 2011 “High” estimate [EC 1165-2-212] of 59 inches of sea-level rise by 2100. ...even if sea level science is evolving, the Project should plan for 59 inches of sea-level rise”.*

The 2023 accelerating SLR data proves otherwise. CDFW is required to disclose and analyze new flood control design parameters and commit to additional environmental [and engineering] review if performance criteria changes.

The scope of the REIR must consider this new data, and funding should be postponed until this issue is added to its scope and content.

Thank you and best regards.

Sincerely,

Tom McMahon, Engineer

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References:

[1] “**NASA Interagency** SLR Task Force, National Tech Report, Santa Monica 2023-09-26.xlsx”

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[2] **USACE** Sea Level Analysis Tool (**SLAT**) Ref: Santa Monica, CA - Station ID: 9410840, NVAD 88, 50%, *Project Source: NOAA et al. (2022)*

<https://climate.sec.usace.army.mil/slat/>

[3] **NASA/JPL** Sea Level Change Interagency Task Force 2022 FAQs:

<https://sealevel.nasa.gov/faq/16/what-are-the-scenarios-from-the-sea-level-rise-interagency-task-force-and-how-do-they-compare-to-the/>

[4] **National Ocean Service**, Sea Level Rise Tech 2022 Report:

<https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report-sections.html>

[5] **FEIR** 2.2.6.2 Sea-Level Rise, “*Evolving Sea-Level Rise Science*”

*“As discussed in Section 2.2.3 of Draft EIS/EIR Appendix B1, the Corps, along with the State of California, have provided guidance for sea-level rise planning, which recommends consideration of several sea-level rise scenarios. **The current design conservatively uses the Corps’ 2011 high estimate of 59 inches of sea-level rise by 2100.** If sea-level rise progresses more slowly [sic], the levees will provide flood protection beyond 2100 and the marsh and salt pan habitats will be sustained for longer.” [U.S. Army Corps of Engineers, **2011**. “Sea-Level Change Considerations for Civil Works Programs.” *EC 1165-2-212*.*

October 1, 2011. 1.13E-4 for modified NRC Curve III (HIGH) 1.5 Meters (59 inches).]

[6] **EIR and FEIR References:**

FEIR 2-3171 (most recent) "California Coastal Commission. AUGUST 12, 2015 (8 years old). Sea Level Rise Policy: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits".

https://documents.coastal.ca.gov/assets/slr/guidance/August2015/0a_ExecSumm_Adopted_Sea_Level_Rise_Policy_Guidance.pdf

FEIR 2-3349 "National Research Council (NRC), 2012 (11 years old). "Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future". [http://www.nap.edu/catalog.php?record_id=13389] June 2012, p. 95"

DEIR 3.7-21 National Research Council (NRC), 2012 (11 years old). "Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future". [http://www.nap.edu/catalog.php?record_id=13389] June 2012.

DEIR 3.7-21 Ocean Protection Council (OPC), 2013 (10 years old). "State of California Sea-Level Rise Guidance Document". Developed by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), the Ocean Protection Council's Science Advisory Team and the California Ocean Science Trust. Revised March 2013.

DEIR 3.14-33 University of Southern California Sea Grant Program 2013 (10 years old). "Sea Level Rise Vulnerability Report for the City of Los Angeles". [https://dornsife.usc.edu/assets/sites/291/docs/pdfs/City_of_LA_SLR_Vulnerability_Study_FINAL_Summary_Report_Online_Hyperlinks.pdf]

[7] **Accelerated SLR:** "Second derivatives and climate change!" - "Math is everywhere!" In this video, I show you how to use second derivatives to understand change over time. Jen Fox, Sr. Program Manager at Microsoft, Office of the CTO:

https://www.youtube.com/watch?v=33dl45DhPDc&ab_channel=jenfoxbot

The NASA/JPL SLR second-order derivative is substantially higher than forecast in USACE EC 1165-2-212 (12 years old)

NASA/JPL Interagency SLR Task Force, National Tech Report, Santa Monica 2023-09-26																
Units	scenario	quantile	2020	2030	2040	2050	2060	2070	2080	2090	2100	2110	2120	2130	2140	2150
mm	Low	17	33.89199	57.89199	80.89199	100.892	118.892	133.892	149.892	165.892	178.892	186.892	195.892	204.892	212.892	220.892
mm	Low	50	48.89199	76.89199	104.892	126.892	150.892	174.892	194.892	213.892	235.892	252.892	269.892	287.892	304.892	321.892
mm	Low	83	66.89199	100.892	134.892	160.892	190.892	223.892	250.892	276.892	310.892	339.892	369.892	403.892	432.892	465.892
mm	Low	17	39.89199	71.89199	103.892	138.892	176.892	218.892	265.892	312.892	351.892	395.892	436.892	477.892	517.892	556.892
mm	Low	50	59.89199	95.89199	133.892	174.892	217.892	263.892	314.892	371.892	425.892	479.892	534.892	590.892	646.892	703.892
mm	Low	83	83.89199	123.892	168.892	217.892	266.892	317.892	374.892	435.892	505.892	576.892	652.892	732.892	818.892	917.892
mm	Int	17	46.89199	81.89199	121.892	170.892	229.892	307.892	418.892	568.892	695.892	816.892	933.892	1040.892	1142.892	1231.892
mm	Int	50	66.89199	105.892	155.892	218.892	294.892	387.892	515.892	694.892	897.892	1099.892	1269.892	1424.892	1578.892	1737.892
mm	Int	83	86.89199	134.892	202.892	287.892	391.892	511.892	651.892	806.892	1008.892	1299.892	1694.892	2214.892	2847.892	3611.892
mm	Int	17	45.89199	81.89199	131.892	208.892	310.892	437.892	611.892	856.892	1074.892	1249.892	1385.892	1531.892	1659.892	1776.892
mm	Int	50	68.89199	117.892	184.892	287.892	442.892	652.892	881.892	1127.892	1411.892	1665.892	1877.892	2076.892	2231.892	2408.892
mm	Int	83	92.89199	161.892	276.892	427.892	604.892	807.892	1057.892	1309.892	1563.892	1899.892	2261.892	2626.892	3049.892	3473.892
mm	High	17	47.89199	82.89199	143.892	244.892	408.892	629.892	954.892	1356.892	1743.892	2027.892	2228.892	2435.892	2563.892	2647.892
mm	High	50	69.89199	125.892	212.892	357.892	575.892	862.892	1202.892	1570.892	1955.892	2341.892	2672.892	2947.892	3230.892	3509.892
mm	High	83	90.89199	176.892	324.892	509.892	746.892	1022.892	1362.892	1724.892	2115.892	2562.892	3170.892	3813.892	4498.892	5208.892

U.S. Army Corps of Engineers, 2011, "Sea-Level Change Considerations for Civil Works Programs," EC 1165-2-212, October 1, 2011		USACE "HIGH"		NASA/JPL		NASA/JPL		NASA/JPL		NASA/JPL		NASA/JPL		NASA/JPL		NASA/JPL	
Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"	Quantile	USACE "HIGH"
N/A	1498.6	59	59	17	173,892	68,65717	116,37%	135,32%	148,73%	162,54%	171,09%	176,69%	181,39%	190,10%	198,81%	207,52%	216,23%
N/A	1498.6	59	59	50	1955,892	77,00362	130,51%	156,27%	178,36%	196,71%	215,59%	234,21%	253,04%	271,87%	290,70%	309,53%	328,36%
N/A	1498.6	59	59	83	2115,892	83,30283	141,19%	171,02%	211,59%	254,50%	300,21%	347,58%	394,95%	442,32%	489,69%	537,06%	584,43%



In 2022, the Sea Level Rise and Coastal Flood Hazard Scenarios and Tools Interagency Task Force produced a Technical Report titled "Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines". This report provides the most up-to-date sea level rise scenarios, available for all U.S. states and territories, out to the year 2150. It is the latest product from the Task Force, which includes the National Aeronautics and Space Administration, the National Oceanic Atmospheric Administration, Environmental Protection Agency, U.S. Geological Survey, and U.S. Army Corps of Engineer, along with partners in academia. The information in the report is intended to inform coastal communities and others about current and future sea level rise to help contextualize its effects for decision making purposes. This is the Sep 26, 2023 Update.

